



Molecular characteristics of Human Endogenous Retrovirus type-W in schizophrenia and bipolar disorder.

Hervé Perron, Nora Hamdani, Raphaël Faucard, Mohamed Lajnef, Stéphane Jamain, Claire Daban-Huard, Samuel Sarrazin, Emmanuel Leguen, Josselin Houenou, Marine Delavest, et al.

► To cite this version:

Hervé Perron, Nora Hamdani, Raphaël Faucard, Mohamed Lajnef, Stéphane Jamain, et al.. Molecular characteristics of Human Endogenous Retrovirus type-W in schizophrenia and bipolar disorder.: HERV-W in schizophrenia and bipolar disorder. *Translational Psychiatry*, 2012, 2, pp.e201. 10.1038/tp.2012.125 . inserm-00807038

HAL Id: inserm-00807038

<https://www.hal.inserm.fr/inserm-00807038>

Submitted on 2 Apr 2013

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

SUPPLEMENTARY INFORMATION

Molecular characteristics of Human Endogenous Retrovirus type-W (HERV-W) in schizophrenia and bipolar disorder.

TABLE OF CONTENT:

I. Complementary Statistical analyses P. 2

TABLE S1: HERV-W RNA RELATIVE EXPRESSION OF THE MSRV SUBTYPE, ALL CONTROLS

TABLE S2: RELATIVE EXPRESSION OF THE MSRV SUBTYPE,
CONTROLS WITH NEGATIVE CRP (C-)

TABLE S3: HERV-W RNA RELATIVE EXPRESSION AND DNA COPY NUMBERS
STATISTICAL ANALYSES EXCLUDING BIPOLAR DISORDER PATIENTS
TREATED WITH VALPROATE.

II. Sequence analyses P. 3

FIGURE S1: SEQUENCE ALIGNEMENTS WITH THE PROBE P3-14

FIGURE S1A: HC RNA P3-4

FIGURE S1B: HC DNA P5-6

FIGURE S1C: BD RNA P7-8

FIGURE S1D: BD DNA P9-10

FIGURE S1E: SZ RNA P11-12

FIGURE S1F: SZ DNA P13-14

FIGURE S2: PHYLOGENETIC TREE REPRESENTATION OF ALIGNED CLONES WITH RELATED
HERV-W AND DISTANT HERV-K ENV GENE SEQUENCES: P15-17

FIGURE S2A: RNA AND DNA CLONES FROM BD P15

FIGURE S2B: RNA AND DNA CLONES FROM SZ P16

FIGURE S2C: RNA AND DNA CLONES FROM HC P17

I. Complementary Statistical analyses:

Table S1: HERV-W RNA relative expression of the MSRV subtype, all controls

Variables	BP,N=91	SZ,N=45	Controls,N=73	P for all	P BP vs TEM	P BP vs SZ	P SZ vs TEM
	Mean(SD)			P value Kruskal Wallis/Mann Whitney			
RNA	1.62 (4.6)	0.84 (0.5)	0.65 (0.6)	<0.0001	<0.0001	0.01	0.012
DNA	0.61(0.3)	0.55(0.3)	0.77(0.3)	0.0005	0.0016	0.575	0.0003

Table S2: HERV-W relative expression of the MSRV subtype,
Controls with negative CRP (C-)

Variables	BP,N=91	SZ,N=45	Controls,N=46	P for all	P BP vs TEM	P BP vs SZ	P SZ vs TEM
	Mean(SD)			P value Kruskal Wallis/Mann Whitney			
RNA	1.62 (4.6)	0.84 (0.5)	0.62 (0.6)	<0.0001	<0.0001	0.01	0.007
DNA	0.60(0.3)	0.55(0.3)	0.77(0.3)	0.0015	0.003	0.575	0.0006

Table S3: HERV_W RNA relative expression and DNA copy numbers of the MSRV subtype.
Statistical analyses excluding Bipolar Disorder Patients treated with Valproate.

Variables	BP,N=68	SZ,N=45	Controls,N=73	P for all	P BP vs TEM	P BP vs SZ	P SZ vs TEM
	Mean(SD)			P value Kruskal Wallis/Mann Whitney			
RNA	1.71 (5.3)	0.84 (0.5)	0.65 (0.6)	<0.0001	<0.0001	0.087	0.007
DNA	0.61(0.3)	0.55(0.3)	0.77(0.3)	0.0009	0.006	0.468	0.0003

II. Sequence analyses

Figure S1: Sequence alignments with the HERV-W/MSRV-env specific Probe

Figure S1A: HC RNA

```

MSRVqPCR p 10 20
            TTCTTCAAATGGAGCCCCAGATGCAG
            AAGAAGTTTACCTCGGGTCTACGTC

1. RNA-H12_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

2. RNA-H12_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

3. RNA-H12_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

4. RNA-H12_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

5. RNA-H12_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

6. RNA-H12_6 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

7. RNA-H12_8 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

8. RNA-H12_9 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

9. RNA-H16_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

10. RNA-H16_ 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

11. RNA-H16_ 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

12. RNA-H16_ 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

13. RNA-H16_ 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

14. RNA-H1_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

15. RNA-H1_1 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

16. RNA-H1_2 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

17. RNA-H1_3 40 50
[ 104 ]      TTCTTCAAATGGAGCCCCAGATGCAG>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

18. RNA-H12_ 40 50
[ 100 ]      TTCTTCAAATGGAGCCCCAGATGCA>
            |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCA

```

```

19. RNA-H16_      40      50
[ 100 ] >TTCTTCAAATGGANCCCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

20. RNA-H1_8      40      50
[ 100 ] >TTCTTCAAATGGAGCCCCAGATGCA>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCA

21. RNA-H12_     130      120      110
[ 98 ] <TTCTTCAAATGGAAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

22. RNA-H12_      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

23. RNA-H12_      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

24. RNA-H16_     130      120      110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

25. RNA-H16_     130      120      110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

26. RNA-H16_      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

27. RNA-H16_      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

28. RNA-H1_1      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

29. RNA-H1_1     130      120      110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

30. RNA-H1_1     130      120      110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

31. RNA-H1_7      40      50
[ 98 ] >TTCTTCAAATGGAACCCAGATGCAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

32. RNA-H16_     130      120      110
[ 92 ] <TTCTTCAAACGGAACCCAGATGCAG
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

33. RNA-H12_     320      330
[ 88 ] >TTCTTCAAATGGAGCCCCAGA--CAG>
          |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

```

Figure S1B: HC DNA

```

MSRVqPCR p 10 20
             TTCTTCAAATGGAGCCCCAGATGCAG
             AAGAAGTTTACCTCGGGGTCTACGTC

1. DNA-H12_1 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

2. DNA-H12_5 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

3. DNA-H16_1 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

4. DNA-H16_1 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

5. DNA-H16_1 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

6. DNA-H16_140 50 60
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

7. DNA-H16_5 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

8. DNA-H16_8 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

9. DNA-H1_13 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

10. DNA-H1_1 40 50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

11. DNA-H12_ 130 120 110
[ 98 ] <TTCTTCAAATGGAGCCCCAGATGCAG
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

12. DNA-H12_ 40 50
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

13. DNA-H12_ 40 50
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

14. DNA-H16_40 50 60
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

15. DNA-H16_40 50 60
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

16. DNA-H16_ 40 50
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

17. DNA-H1_1 130 120 110
[ 98 ] <TTCTTCAAATGGAGCCCCAGATGCAG
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

18. DNA-H1_7 40 50
[ 98 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

```

```

19. DNA-H1_1      40      50
[ 96 ] TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

20. DNA-H1_4      40      50
[ 96 ] TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

21. DNA-H12_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

22. DNA-H12_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

23. DNA-H12_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

24. DNA-H12_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

25. DNA-H12_      40      50
[ 92 ] TTCTTCAAATTGAGCCTCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

26. DNA-H12_      40      50
[ 92 ] TTCTTCAAATTGAGCCTCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

27. DNA-H16_ 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

28. DNA-H16_40      50      60
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

29. DNA-H16_ 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG
30. DNA-H16_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

31. DNA-H16_      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

32. DNA-H1_1 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

33. DNA-H1_1      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

34. DNA-H1_3 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

35. DNA-H1_6      40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

36. DNA-H1_9 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG
      ||||| |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

```

Figure S1C: BD RNA

```

      10      20
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG
              AAGAAAGTTTACCTCGGGGTCTACGTC

1. RNA70_10.      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

2. RNA70_13.      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

3. RNA70_15.      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

4. RNA70_16.      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

5. RNA71_3.n      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

6. RNA71_6.n      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

7. RNA71_9.n      40      50
[ 104 ]  TTCTTCAAATGGAGCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

8. RNA71_16.      40      50
[ 100 ]  NTCTTCAAATGGAGCCCCAGATGCA>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCA

9. RNA71_7.n0      50      60
[ 100 ]  CTCTTCAAATGGAGCCCCAGATGCA>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCA

10. RNA66_1.      40      50
[ 98 ]  TTCTTCAAATGGATCCCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

11. RNA66_10      130      120      110
[ 98 ]  <TTCTTCAAATGGAAACCCAGATGCAG
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

12. RNA66_12      40      50
[ 98 ]  TTCTTCAAATGGAAACCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

13. RNA66_15      130      120      110
[ 98 ]  <TTCTTCAAATGGAAACCCAGATGCAG
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

14. RNA66_16      40      50
[ 98 ]  TTCTTCAAATGGAAACCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

15. RNA66_2.      40      50
[ 98 ]  TTCTTCAAATGGAAACCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

16. RNA66_5.      130      120      110
[ 98 ]  <TTCTTCAAATGGAAACCCAGATGCAG
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

17. RNA66_6.      40      50
[ 98 ]  TTCTTCAAATGGAAACCCAGATGCAG>
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

18. RNA66_7.      130      120      110
[ 98 ]  <TTCTTCAAATGGAAACCCAGATGCAG
              |||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

```



```

19. RNA66_8.      40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

20. RNA70_1.130   120     110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

21. RNA70_12     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

22. RNA70_14     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

23. RNA70_4.     320     330
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

24. RNA70_5.     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

25. RNA70_6.     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

26. RNA70_7.     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

27. RNA70_9.     130     120     110
[ 98 ] <TTCTTCAAATGGAACCCAGATGCAG
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

28. RNA71_12     40      50      60
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

29. RNA71_5.     40      50
[ 98 ] TTCTTCAAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

30. RNA66_13     40      50
[ 92 ] TTCTTCGAATGGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

31. RNA66_3.     40      50
[ 92 ] TTCTTCAAATGGAACCCAGTGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

32. RNA66_9.     40      50
[ 92 ] TTCTTCAAATGGAACCCAGATGCG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

33. RNA71_11     40      50
[ 92 ] TTCTTCAAGTGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

34. RNA71_15     40      50
[ 92 ] TTCTTCAAGTGAACCCAGATGCAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

35. RNA71_8.     130     120     110
[ 92 ] <TTCTTCAAGTGAACCCAGATGCAG
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

36. RNA70_11     320     330
[ 88 ] TTCTTCAAATGGAGCCCAG--CAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

37. RNA70_2.     40      50
[ 88 ] TTCTTCAAATGGAGCCCAG--CAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

38. RNA70_8.     320     330
[ 88 ] TTCTTCAAATGGAGCCCAG--CAG>
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

39. RNA71_4.130   120     110
[ 88 ] <TTCTTCAAATGGAGCCCAG--CAG
      |||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

```

```

10      20
R p    TTCTTCAAATGGAGCCCCAGATGCAG
      AAGAAAGTTTACCTCGGGGTCTACGTC

6_14.      40      50
[]    TTCTTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

6_4.n      40      50
[]    TTCTTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

6_7.n      40      50
[]    TTCTTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

6_9.n      40      50
[]    TTCTTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

0_9.n      40      50
[]    TTCTTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

6_5.n      40      50
[]    TTCCTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

0_11.      130      120      110
[]    <TTCTTCAAATGGAACCCAGATGCAG
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

0_12.      40      50
[]    TTCTTCAAATGGAACCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

0_5.n      40      50
[]    TTCCTCAAATGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

71_12      40      50
[]    TTCTTCAAATGGAACCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

66_8.      40      50
[]    TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

70_2.      40      50
[]    TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

71_15      40      50
[]    TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

71_4.      40      50
[]    TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

71_6.      40      50
[]    TTCTTCAAATGGAGCCCCAGATG-AG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

66_11      40      50
[]    TTCCTAAATTGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

66_13      40      50
[]    TTCCTAAATTGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

66_15      40      50
[]    TTCCTAAATTGGAGCCCCAGATGCAG>
      |||
R p    TTCTTCAAATGGAGCCCCAGATGCAG

```

```

19. DNA70_1. 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

20. DNA70_10 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

21. DNA70_13 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

22. DNA70_16 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

23. DNA70_4. 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

24. DNA70_8. 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

25. DNA71_10 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

26. DNA71_11 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

27. DNA71_13 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

28. DNA71_14 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

29. DNA71_2. 130      120      110
[ 92 ] <TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

30. DNA71_3. 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

31. DNA71_5. 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

32. DNA71_7. 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

33. DNA71_8. 40      50
[ 92 ] TTCTTAAATTGGAGCCCCAGATGCAG>
      ||||| || |||||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

```

Figure S1E: SZ RNA

```

      10      20
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG
            AAGAAGTTTACCTCGGGTCTACGTC

1. RNA11_10.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

2. RNA11_11.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

3. RNA11_12.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

4. RNA11_14.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

5. RNA11_15.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

6. RNA11_2.n      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

7. RNA11_3.n      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

8. RNA11_6.n      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

9. RNA11_8.n      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

10. RNA11_9.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

11. RNA16_10      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

12. RNA16_2.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

13. RNA16_3.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

14. RNA16_9.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

15. RNA23_12      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

16. RNA23_16      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

17. RNA23_2.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

18. RNA23_4.      40      50
[ 104 ] TTCTTCAAATGGAGCCCCAGATGCAG>
        |||
MSRVqPCR p TTCTTCAAATGGAGCCCCAGATGCAG

```

```
19. RNA23_6.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

20. RNA23_9.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

21. RNA32_10      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

22. RNA32_11      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

23. RNA32_12      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

24. RNA32_13      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

25. RNA32_14      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

26. RNA32_16      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

27. RNA32_3.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

28. RNA32_4.     130      120      110
[ 104 ] <TTCTTCAAATGGAGCCCAGATGCAG
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

29. RNA32_5.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

30. RNA32_7.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

31. RNA32_8.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

32. RNA32_9.      40      50
[ 104 ] TTCTTCAAATGGAGCCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

33. RNA23_10      40      50
[ 100 ] TTCTTCAAATGGAGCCCAGATGCA>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCA

34. RNA11_16      40      50
[ 98 ] TTCTTCAAATGGAGCCCAGAGGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

35. RNA11_4.      40      50
[ 98 ] TTCTTCAAATGGAGCCCAGAGGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

36. RNA23_3.      40      50
[ 98 ] TTCTTCAAATGGAGCTCCAGATGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

37. RNA23_5.      40      50
[ 98 ] TTCTTCAAATGGAGCCCAGAGGCAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG

38. RNA16_11      40      50
[ 88 ] TTCTTCAAATGGAGCCCAGAG--CAG>
|||||
MSRVqPCR p TTCTTCAAATGGAGCCCAGATGCAG
```

Figure S1F: SZ DNA

		10	20
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	AAGAAGTTTACCTCGGGTCTACGTC
1. DNA16_1.n		40	50
[104]		TTCTTCAAATGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
2. DNA23_11.		40	50
[104]		TTCTTCAAATGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
3. DNA23_15.		40	50
[104]		TTCTTCAAATGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
4. DNA16_11.		130	120
[98]		<TTCTTCAAATGGAGCCCCAGATGCAG	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
5. DNA23_9.n		40	50
[98]		TTCTTCAAATGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
6. DNA32_1.n		40	50
[98]		TTCTTCAAATGGAGCCCCAGAGGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
7. DNA11_2.n		40	50
[96]		TTCTTCAAATGGAGCCCCAGATG-AG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
8. DNA11_3.n		40	50
[96]		TTCTTCAAATGGAGCCCCAGATG-AG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
9. DNA11_6.n		130	120
[96]		<TTCTTCAAATGGAGCCCCAGATG-AG	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
10. DNA-VIP3		40	50
[92]		TTCTTAAATTGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
11. DNA11_1.		40	50
[92]		TTCTTCAAATTGAGCCTCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
12. DNA11_12		40	50
[92]		TTCTTCAAATTGAGCCTCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
13. DNA11_14		130	120
[92]		<TTCTTAAATTGGAGCCCCAGATGCAG	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
14. DNA11_15		40	50
[92]		TTCTTAAATTGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
15. DNA11_16		130	120
[92]		<TTCTTCAAATTGAGCCTCAGATGCAG	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
16. DNA11_7.		40	50
[92]		TTCTTAAATTGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
17. DNA11_8.		40	50
[92]		TTCTTAAATTGGAGCCCCAGATGCAG>	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	
18. DNA16_8.		130	120
[92]		<TTCTTAAATTGGAGCCCCAGATGCAG	
MSRVqPCR p		TTCTTCAAATGGAGCCCCAGATGCAG	

```

19. DNA23_14      40      50
[  92 ]  TTCTTCAAATTGAGCCTCAGATGCAG>
          ||||| ||| ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

20. DNA23_2. 130      120      110
[  92 ]  <TTCTTAAATTGGAGCCCCAGATGCAG
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

21. DNA23_4.      40      50
[  92 ]  TTCTTAAATTGGAGCCCCAGATGCAG>
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

22. DNA23_8. 130      120      110
[  92 ]  <TTCTTAAATTGGAGCCCCAGATGCAG
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

23. DNA32_12      40      50
[  92 ]  TTCTTAAATTGGAGCCCCAGATGCAG>
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

24. DNA32_15 130      120      110
[  92 ]  <TTCTTAAATTGGAGCCCCAGATGCAG
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

25. DNA32_2.      40      50
[  92 ]  TTCTTAAATTGGAGCCCCAGATGCAG>
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

26. DNA32_3.      40      50
[  92 ]  TTCTTCAAATTGAGCCTCAGATGCAG>
          ||||| ||| ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

27. DNA32_7.      40      50
[  92 ]  TTCTTAAATTGGAGCCCCAGATGCAG>
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

28. DNA32_8.      40      50
[  92 ]  TTCTTAAATTGGAGCCCCAGATGCAG>
          ||||| || ||||| |||||
MSRVqPCR p  TTCTTCAAATGGAGCCCCAGATGCAG

```

Figure S2: Phylogenetic tree representation of aligned clones with related HERV-W and distant HERV-K env gene sequences:

Figure S2A: RNA and DNA clones from BD

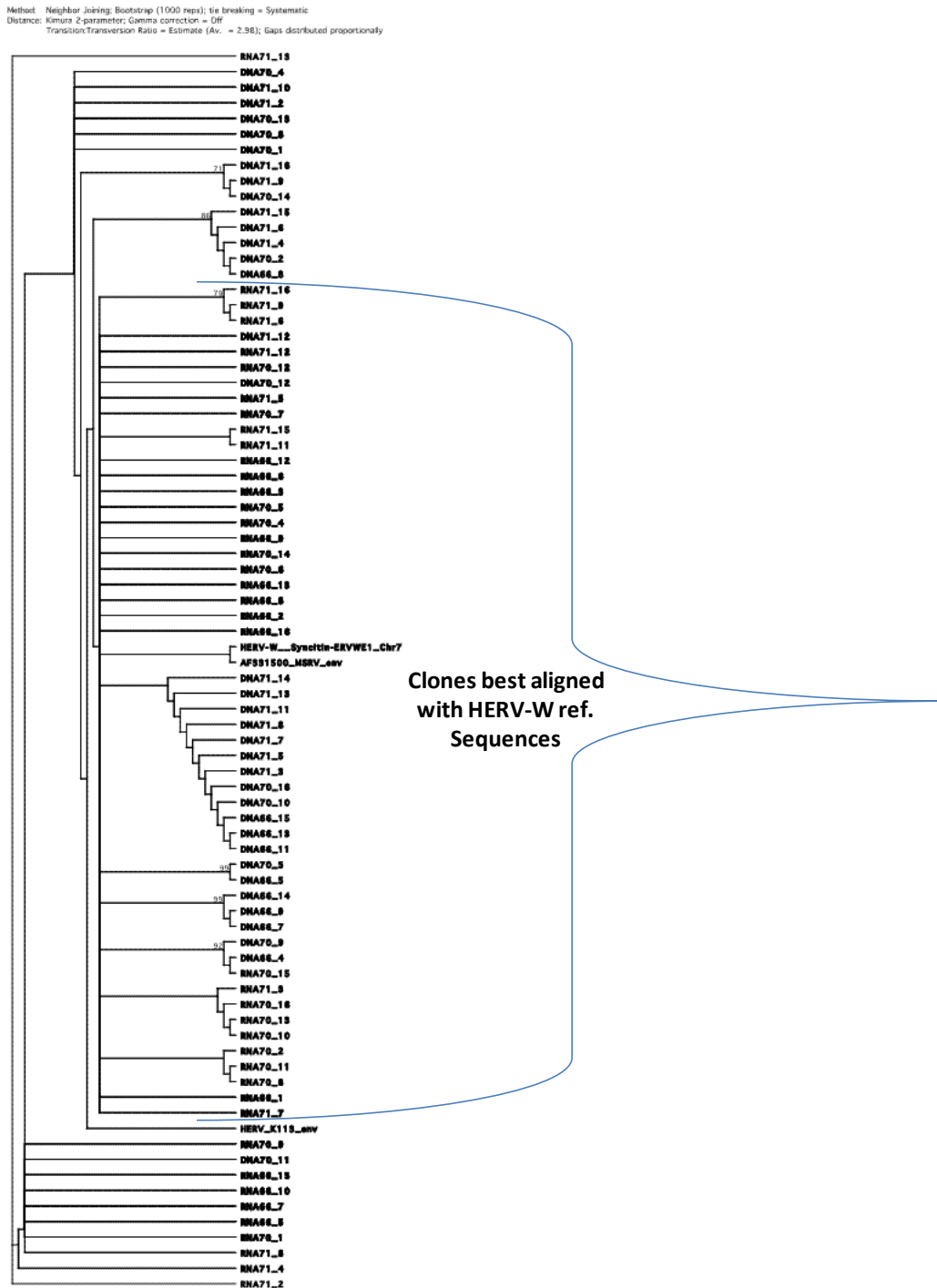


Figure S2B: RNA and DNA clones from SZ

Method: Neighbor Joining; Bootstrap (1000 reps); tie breaking = Systematic
Distance: Kimura 2-parameter; Gamma correction = Off
Transition/Transversion Ratio = Estimate (Av. = 2.75); Gaps distributed proportionally

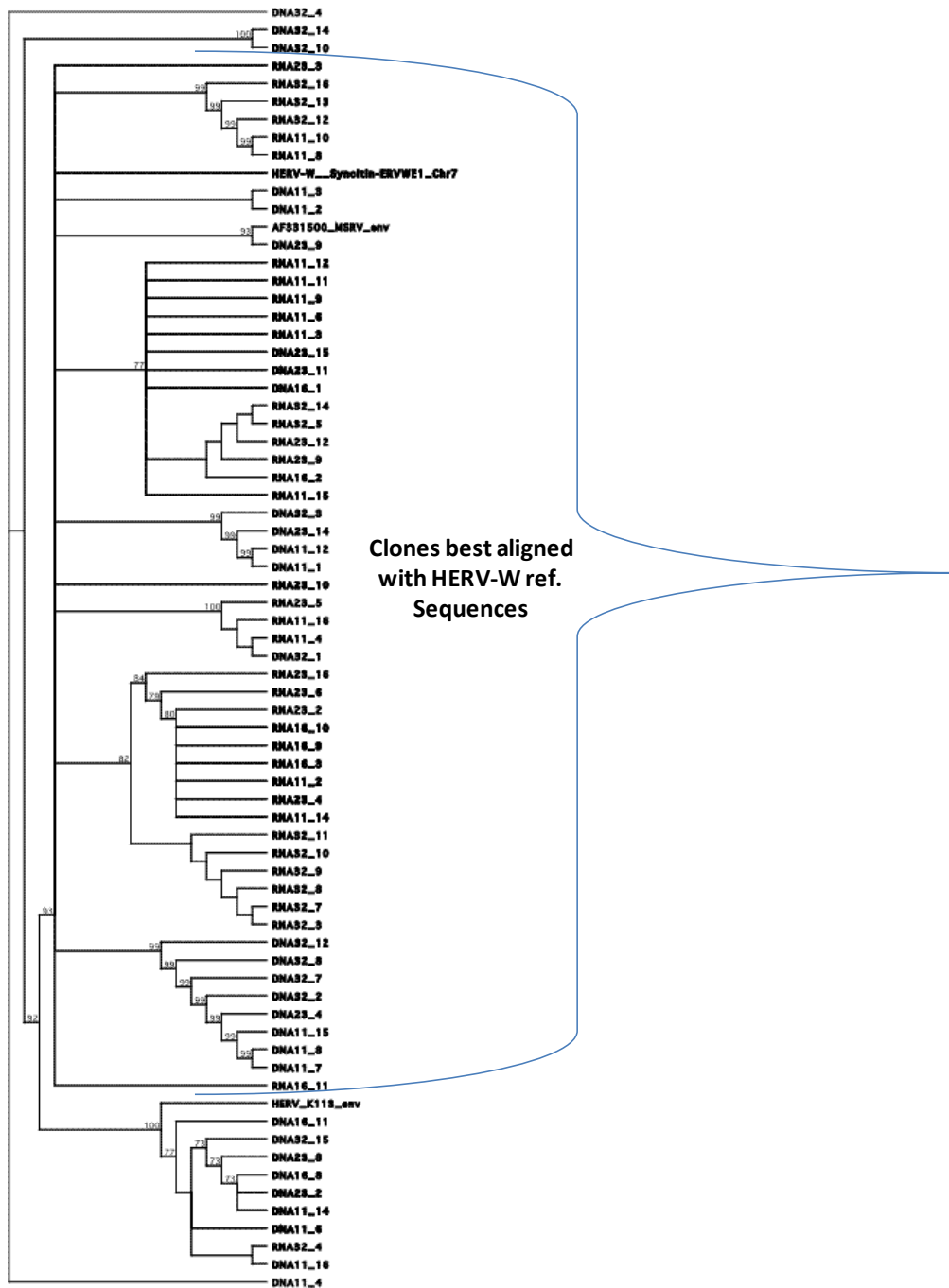


Figure S2C: RNA and DNA clones from HC

Method: Neighbor Joining; Bootstrap (1000 reps); tie breaking = Systematic
Distance: Kimura 2-parameter; Gamma correction = Off
Transition:Transversion Ratio = Estimate (Av. = 3.02); Gaps distributed proportionally

